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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,854

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Euijoon Yoon

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3828

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7590

02/25/2010

DARBY & DARBY P.C.

P.O. BOX 770

Church Street Station

New York, NY 10008-0770

EXAMINER

MALDONADO, JULIO J

ART UNIT

PAPER NUMBER

2823

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<p align="center"><b>Advisory Action</b> <b>Before the Filing of an Appeal Brief</b></p>	<p><b>Application No.</b> 10/563,854</p>	<p><b>Applicant(s)</b> YOON ET AL.</p>	
	<p><b>Examiner</b> JULIO J. MALDONADO</p>	<p><b>Art Unit</b> 2823</p>	

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 08 February 2010 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.  
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

#### AMENDMENTS

3. ☒ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
(a) ☒ They raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ They raise the issue of new matter (see NOTE below);  
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: See Continuation Sheet. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☒ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
The status of the claim(s) is (or will be) as follows:  
Claim(s) allowed: \_\_\_\_\_.  
Claim(s) objected to: 13.  
Claim(s) rejected: 1, 3-12 and 14-19.  
Claim(s) withdrawn from consideration: \_\_\_\_\_.

#### AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

#### REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
See Continuation Sheet.  
12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_.  
13. ☐ Other: \_\_\_\_\_.

/Julio J. Maldonado/  
Primary Examiner, Art Unit 2823

Continuation of 3. NOTE: The amendment filed 02/08/2010 in reply to the final rejection has been considered but is not deemed to place the application in condition for allowance and will not be entered because the proposed amendment raises new issues that would require further consideration and/or search. The amended independent claims now add the limitation "...a fourth step of growing a fourth nitride semiconductor epitaxial layer on the third nitride semiconductor epitaxial layer after releasing nitrogen from the second nitride semiconductor epitaxial layer" as disclosed in claim 1; "...after converting the InN layer into the metal layer", as disclosed in claim 15; and "...a fourth step of growing a third nitride semiconductor epitaxial layer on the second nitride semiconductor epitaxial layer after releasing nitrogen from the first nitride semiconductor epitaxial layer", as disclosed in claim 16, where there was no mention within the claims of this limitation. The amendment raises new issues into the prosecution of the instant application and would thus provide grounds for a new search and further consideration.

Continuation of 11. does NOT place the application in condition for allowance because: Applicant's arguments filed 02/08/2010 have been fully considered but they are not persuasive.

The applicants argue, "...The Examiner contends that Chua describes growing a fourth nitride semiconductor epitaxial layer on the third nitride semiconductor epitaxial layer after releasing nitrogen from the second nitride semiconductor epitaxial layer. In reference to Chua, the Examiner states that the second Distributed Bragg Reflector ("DBR") 142, which can be formed of alternating GaN/AlGaIn layers, is equivalent to the fourth nitride semiconductor epitaxial layer of amended claim 1. Chua, column 7, lines 1-7. Applicant respectfully disagrees. The second DBR 142 of Chua is not equivalent to the fourth nitride semiconductor layer of amended claim 1 because the second DBR 142 is not formed after releasing the nitrogen of the InGaIn layer 106, which the Examiner equates to the second semiconductor epitaxial layer of claim 1. Rather, the second DBR 142 of Chua is formed after the sapphire substrate 100, the gallium nitride layers 102 and 104, and the InGaIn layer 106 are separated from the semiconductor structure by a laser beam. Chua, column 6, lines 14-29. Kelly also fails to describe those features demonstrated to be missing from Chua..."

In response to this argument, the Chua discloses performing a separation process with a laser beam (See Chua, Fig.2 and column 6, lines 14 - 65), and forming a fourth nitride layer over a third nitride layer after performing said separation (Chua, column 7, lines 1 - 7). Chua fails to expressly disclose releasing nitrogen from an InGaIn layer. However, and as stated in the office action mailed 12/08/2009, Kelly discloses a method of forming nitride semiconductor layers including forming III-nitride semiconductor layers and performing a decomposition process on a III-nitride semiconductor layer (Kelly, column 8, lines 8 - 58). Accordingly, it would have been within the scope of one of ordinary skill in the art to combine the teachings of Chua and Kelly to enable releasing the nitrogen from the InGaIn layer of Chua according to the teachings of Kelly because one of ordinary skill in the art would have been motivated to look to analogous art teaching alternative suitable or useful methods of releasing the nitrogen in the InGaIn layer of Chua and art recognized suitability for an intended purpose has been recognized to be motivation to combine. MPEP 2144.07. Therefore, the combination of Chua and Kelly discloses forming a fourth nitride layer over a third nitride after performing a separation process, which in this case, said separation releases nitrogen from an InGaIn layer.

Applicants argue, "...The purpose of converting the second semiconductor epitaxial layer into a metal layer by releasing nitrogen is to reduce stresses associated with growing the fourth semiconductor epitaxial layer on the third nitride semiconductor epitaxial layer. See Applicants Published Specification, paragraph 28. By reducing stresses, the metal layer also reduces warpage of the fourth nitride semiconductor epitaxial layer or warpage of other nitride semiconductor epitaxial layers grown on the fourth layer. See Applicants' Published Specification, paragraph 28. In contrast, Chua discloses that the nitrogen is released from the InGaIn 106 layer after seven additional nitride layers, a first distributed Bragg reflector, a gold layer and a silicon substrate are grown on the InGaIn layer. Chua, column 5, lines 11-58. As such, the nitrogen is released from the InGaIn layer after the growing of subsequent nitride layers and does not reduce the stresses on and warpage of the subsequent nitride layers. Due to the fact that the purpose of releasing the nitrogen from the InGaIn layer in Chua is different from the purpose of releasing the nitrogen from the second semiconductor epitaxial layer of the present invention, Chua teaches away from the invention of amended claim 1..."

In response to this argument, the examiner respectfully submits that the combination of Chua and Kelly discloses the claimed invention. The combination of Chua and Kelly discloses a process of separating a series of nitride layers from a substrate by releasing nitrogen from an InGaIn layer and the examiner respectfully submits that the combination of Chua and Kelly does not teach away from the invention of amended claim 1, as argued by the applicants.